Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte ITSUKI BAHN

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Appeal No. 1998-2601
Application 08/809,052

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ON BRIEF

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Before HAIRSTON, JERRY SMITH and BARRETT, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1-4, which constitute all the claims in the application.

The disclosed invention pertains to a polyphase reluctance motor.

Representative claim 1 is reproduced as follows:

1. A polyphase (N phase: N being a positive integer greater than or equal to 3) reluctance motor comprising:

a rotor formed of a soft magnetic substance which is provided with n units of salient poles (n being a positive integer greater than or equal to 2) of the same width and the same interval in a circumferential direction thereof;

a stator having m x n (m is an integer greater than or equal to 3) units of magnetic poles which are formed by winding an armature coil around each two adjacent slots out of m x n units of slots formed at equal intervals in a circumferential direction thereof, said armature coils being connected to constitute a first-phase armature coil, a second phase armature coil, a third-phase armature coil, through an Nth-phase armature coil;

means for rotatably supporting said rotor with respect to said stator armature so that said salient poles of said rotor and said magnetic poles of said stator confront each other through a slight gap;

position detecting units for detecting a rotational position of each salient pole of said rotor, and outputting first-phase, second-phase, third-phase, through Nth-phase position detection signals of the same width, which are successively delayed by a predetermined period;

semiconductor switching elements connected in series to each of said first-phase armature coil, second armature coil, third-phase armature coil, through Nth-phase armature coil;

a DC power source which supplied power to each of said phase armature coils through said semiconductor switching elements connected in series therewith; and

a power-supply control circuit for controlling the activation of said semiconductor switching elements according to said first-phase, second phase, third-phase, through time

Nth-phase position detection signals outputted from said position detecting units, so that said first-phase armature coil may be supplied with power simultaneously with said second-phase armature coil during a section, said second-phase armature coil may be supplied with power simultaneously with said third-phase armature coil during a section, through said Nth-phase armature coil which may be supplied with power simultaneously with said first-phase armature coil during a section,

wherein a first magnetic pole formed in said stator is magnetized simultaneously with a second magnetic pole adjacent thereto in a predetermined direction in a manner such that one is a magnetized North pole while the other is a magnetized South pole, then, the second magnetic pole is magnetized simultaneously with a third magnetic pole adjacent thereto in a predetermined direction in a manner such that one is a magnetized North pole while the other is a magnetized South pole, and then, the third magnetic pole adjacent thereto in a predetermined direction in a manner such that one magnetized North pole while the other is magnetized South pole up to m x n magnetic poles, thereby generating a leakage flux passing through one of two adjacent magnetic poles, of which a confronting area with a salient pole is smaller, which is effective for developing a torque between the magnetic poles and the salient pole, and of which quantity is determined according to the quality of the magnetic flux passing through the other of the above adjacent magnetic poles.

The examiner relies on the following references:

Konecny	4,647,802	Mar. 03, 1987
Bahn (Japanese Kokai)	07-046808	Feb. 14, 1995

Claims 1-4 stand rejected under 35 U.S.C. § 103. As

evidence of obviousness the examiner offers Bahn[1] in view of Konecny.

Rather than repeat the arguments of appellant or the examiner, we make reference to the briefs and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejection advanced by the examiner and the evidence of obviousness relied upon by the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellant's arguments set forth in the briefs along with the examiner's rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would not have suggested to one of

[1] Our understanding of Bahn is based on a translation provided to us by the Scientific and Technical Information Center of the Patent and Trademark Office. A copy of this translation is included with this decision.

ordinary skill in the art the obviousness of the invention as set forth in claims 1-4. Accordingly, we reverse.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the

examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). Only those arguments actually made by appellant have been considered in this decision. Arguments which appellant could have made but chose not to make in the brief have not been considered [see 37 CFR § 1.192(a)].

With respect to sole independent claim 1, the examiner cites Bahn as teaching a reluctance motor of the type claimed except for the stator magnetic poles being alternately magnetized wherein adjacent magnetic poles are in opposite polarities. Konecny is cited as teaching a reluctance motor with adjacent magnetic poles having opposite polarities. The

examiner asserts that it would have been obvious to modify the Bahn motor to have alternately magnetized stator poles as taught by Konecny to minimize flux leakage and improve torque characteristics of the motor [answer, pages 3-4]. With respect to dependent claims 2-4, the examiner finds the limitations of these claims to be the obvious result of optimizing system parameters.

With respect to claim 1, appellant notes that the claimed invention recites that electric current is applied to the stator coils in an overlapping manner with alternate magnetic polarities so as to produce an effective leakage flux between adjacent magnetic poles. Appellant argues that there is no such overlap of current applied in Bahn so that Bahn does not produce any such effective leakage flux. Appellant argues that Konecny also does not teach the production of an effective leakage flux so that Konecny does not make up for the deficiencies of Bahn [brief, pages 6-8].

The examiner responds that the combination of Bahn with Konecny would “inherently” result in overlapping coil currents which would produce a leakage flux as claimed [answer, page 8]. Appellant responds that neither Bahn nor

Konecny teaches the presence of a leakage flux, and the examiner's inherency argument is based on pure speculation as to what would be achieved if the motor of Bahn was modified in accordance with the teachings of Konecny [reply brief].

We agree with the position argued by appellant. The examiner's rejection is based upon several speculative assumptions as to what is taught by Bahn and Konecny and as to what would result if the motor taught by Bahn was modified by certain teachings of Konecny. Additionally, the examiner's motivation for combining the teachings of Bahn with Konecny comes entirely from appellant's own disclosure to achieve the advantages of flux leakage which is only disclosed by appellant. The examiner has essentially substituted her beliefs and opinions for the deficiencies in the evidentiary showings. We are not inclined to dispense with proof by evidence when the proposition at issue is not supported by a teaching in a prior art reference or shown to be common knowledge of unquestionable demonstration. Our reviewing court requires this evidence in order to establish a prima facie case. In re Passaic, 745 F.2d 1468, 1471-72, 233 USPQ 785, 787-88 (Fed. Cir. 1984); In re Knapp-Monarch Co., 296

F.2d 230, 232, 132 USPQ 6, 8 (CCPA 1961); In re Cofer, 354 F.2d 664, 668, 148 USPQ 268, 271-72 (CCPA 1966).

Under the facts of this case, we find that the examiner has failed to provide us with a record that establishes a prima facie case of obviousness because the rationale is speculative at best and there is no motivation gained from the applied prior art for combining their teachings. The only motivation for combining the teachings of the references improperly comes from appellant's own disclosure. Therefore, we do not sustain the rejection of

independent claim 1 or of claims 2-4 which depend therefrom.

Accordingly, the decision of the examiner rejecting claims 1-4 is reversed.

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)	
JERRY SMITH Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
LEE E. BARRETT Administrative Patent Judge	)	

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